Knowledge-based urban development of Multimedia Super Corridor, Malaysia: an overview

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Abstract: In recent years, with the impact of the global knowledge economy, a more comprehensive urban development approach, so called 'knowledge-based urban development', has gained significant popularity. This paper discusses the critical connections among knowledge-based urban development strategies, knowledge-intensive industries and information and communication technology infrastructures. In particular, the research focuses on investigating the application of the knowledge-based urban development concept by discussing one of the South East Asia's large scale knowledge-based urban development manifestations of Malaysia's Multimedia Super Corridor. The paper scrutinises Malaysia's experience in the development and evolution of the Multimedia Super Corridor from the angle of knowledge-based urban development policy implementation, infrastructural implications, and actors involved in its development and management. This paper provides a number of lessons learned from the Multimedia Super Corridor on the orchestration of knowledge-based urban development that is a necessity for cities seeking successful knowledge city and knowledge economy transformations.

Keywords: Knowledge-based urban development; knowledge economy; knowledge city; knowledge corridor; information and communication technology; Multimedia Super Corridor; Malaysia.

1 Introduction

Globalisation and the intensification of the knowledge economy, shaped by the growth of the information and communication technology (ICT) sectors, have resulted in the radical alteration of urban environments through dynamic processes of economic and spatial restructuring (Castells, 2000; Slabbert, 2006; Metaxiotis et al., 2010). In the knowledge economy, classical production (muscle power) is replaced with a more abstract form of production (brain power) and accordingly (as knowledge-intensive activities in the knowledge sector become more important) it started to require new conditions and environments, different from the traditional commodity-based manufacturing economy (Knight, 1995). Furthermore, within the knowledge economy, knowledge and ICTs have become important factors of production, along with land, labour, capital, in the creation of employment and wealth (Cooke, 2001). Consequently, across the globe many scholars, city authorities and urban planners started to explore new ways of strategising planning and development to encompass the requirements of rapidly emerging knowledge societies and cities (Yigitcanlar and Martinez-Fernandez, 2010).

In recent years, a more comprehensive urban development approach has gained significant popularity. This new development approach, so called 'knowledge-based urban development' (KBUD), is different from its traditional predecessor. KBUD provides an approach to foster the element and production of knowledge in urban development (Yigitcanlar, 2010). It assures enabling conditions for cities in global competition and aims to make them compatible with and competitive in the knowledge economy through mechanisms for the creation, promotion, and exchange of knowledge and innovation (Ergazakis et al., 2004).

Over the last two decades, the desire to become competitive and prosperous within the knowledge economy has compelled Malaysia to undertake structural transformations. These

transformations include: moving from primary commodity and agricultural-base economy to a manufacturing-base, knowledge-base and export driven economy with a particular focus on the high-tech and capital-intensive industries (Ramasamy et. al., 2004), and; adaptation of KBUD principles in its development mechanisms in order to achieve a much more sustainable economic and socio-spatial growth and consequently become a globally competitive developed nation (Yigitcanlar and Sarimin, 2010).

This paper provides a thorough review of the literature and a clear understanding of the development and evolution of the KBUD concept. The paper highlights the KBUD efforts conducted in Malaysia by scrutinising its KBUD policies and projects. In order to provide a good KBUD practice overview, this paper particularly focuses its investigation on the globally famous and one of the world's largest KBUD manifestations of Multimedia Super Corridor, Malaysia.

2 Knowledge-based urban development

Predominantly increasing interest in the knowledge economy has been stimulated by its promise to provide cities and regions with opportunities for sustaining a rapid rate of economic growth, enhance global competitiveness, strengthen their capabilities to be innovative and adaptive, and create new marketable knowledge. The knowledge economy is broadly characterised by non-diminishing resources, such as both codified and tacit knowledge. Specifically, it refers to the generation of income through creation, promotion, distribution and consumption of knowledge and knowledge-based product and services, in which the outputs are not only raw materials and tangible goods, but also a highly skilled and educated labour force capable of producing intangible goods such as information, software and management services (Yigitcanlar et. al., 2008a; 2008b).

In the era of knowledge economy, traditional factors of production (i.e. land, labour and capital) are accompanied by information, innovation and the transference of skills by benefitting from ICTs such as the internet. In this era, knowledge has become a key driving force underlying growth and a valuable commodity, not only as a factor of production, but also as a commodity to be traded (Cooke, 2001; Hearn and Rooney, 2008). Cooke (2001) sees knowledge economy not depending on traditional factors such as proximity of the industry to the raw materials, and availability of a transport hub to distribute produced goods, and hence, providing better opportunities for the new knowledge to be generated.

Figure 1 below delineates the evolution of information and knowledge as key factors effecting economic development (also see Drucker, 1993).

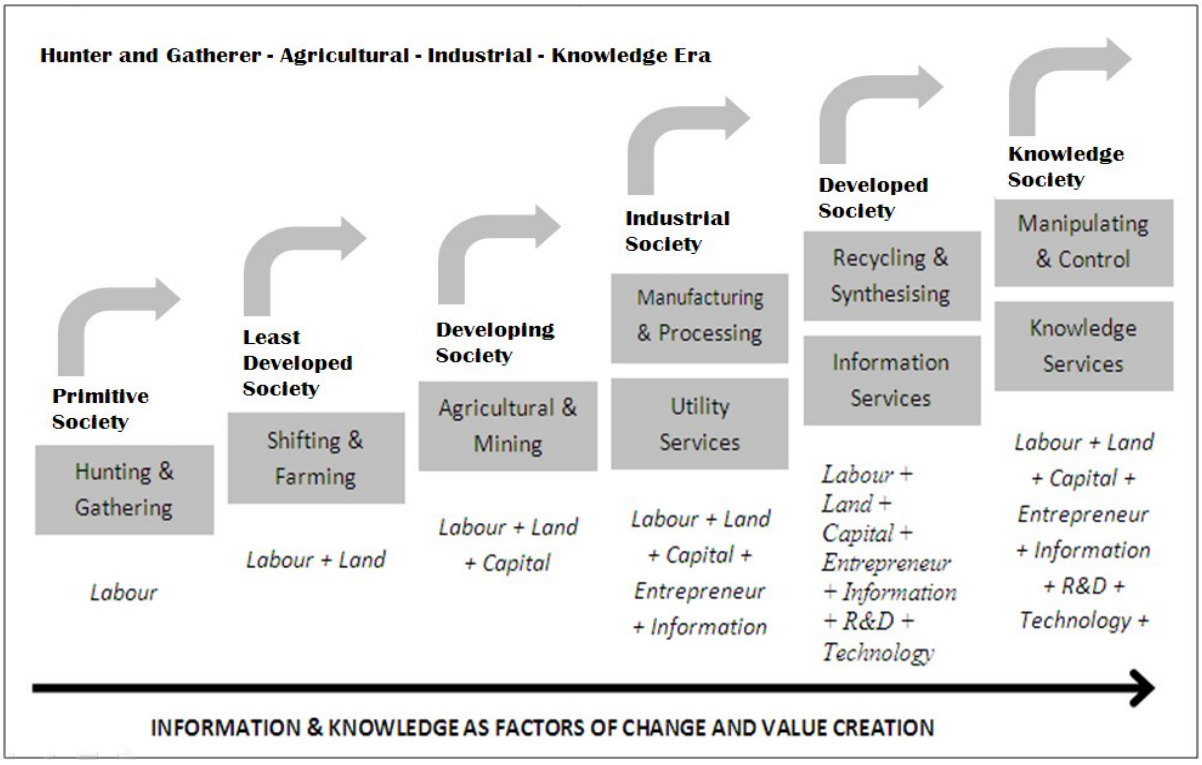

Figure 1 Evolution of factors effecting development (derived from Mohan et al., 2004)

Much of the knowledge economy is focused in the creation of abstract or intangible goods and services produced by a highly educated and talented labour force. This new economy's key assets include: higher levels of per capita wealth, skills and knowledge. Therefore, making a place attractive to global talent and investment is of primary importance and requires a thorough strategic planning and development process.

As a new strategic planning and development approach for cities and regions, KBUD supports the transformation of urban space from a traditional 'primary and secondary industry focused linear place' to a contemporary 'knowledge-based service, industry and activity focused multi-level networked place'. While doing so, this approach also has a particular focus on catering for and attracting knowledge-based and high-technology industry and talent.

With a much more balanced focus on all of the four key development domains – economic, socio-cultural, enviro-urban and institutional – this contemporary approach, aims to bring economic prosperity, environmental sustainability and local institutional competence with a just socio-spatial order to our cities and regions. The ultimate goal of KBUD is to produce a city purposefully designed to encourage the continuous production, circulation and commercialisation of social and scientific knowledge – this will in turn establish a 'knowledge city/region/corridor'.

KBUD transcends many areas of economic, socio-cultural, enviro-urban and institutional policies, and provides various directions for cities. These policy and directions include, but not limited to, becoming highly: knowledge intensive; economically strong, diverse and specialised; strong in higher education and research intensive institutions; sophisticated in urban and knowledge infrastructure and amenities; increased quality of life and place, and; attractive for investment and talent (Yigitcanlar et. al., 2008d).

Figure 2 below illustrates the key domains of KBUD required to facilitate the necessary knowledge-intensive activities within a city or region, for knowledge economy transformation and knowledge city formation.

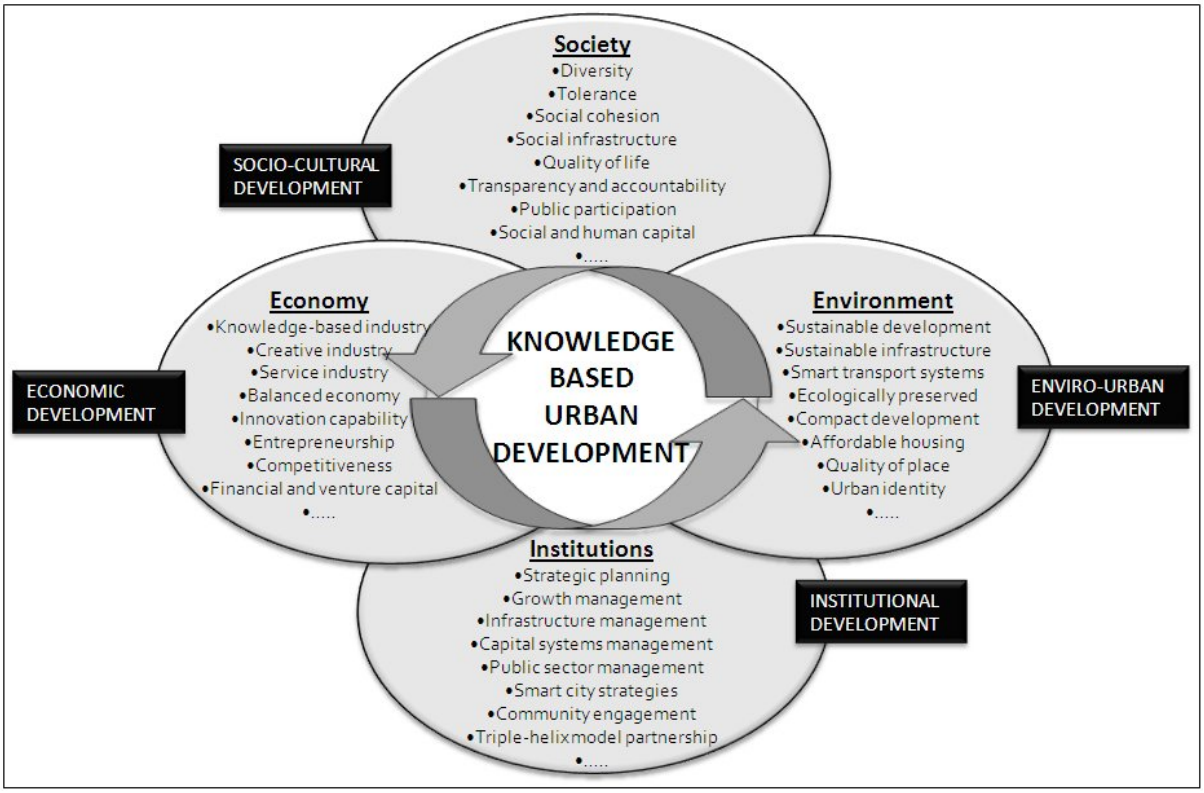

Figure 2 Key domains of KBUD (derived from Yigitcanlar, 2009)

In theory, KBUD establishes its conceptual foundation based on various theories including: Relational Theory (Graham and Healey, 1999), New Growth Theory (Romer, 1986), Human Capital Theory (Schultz, 1961; Becker, 1994), Creative Class Thesis (Florida, 2004) and Actors Network Theory (Callon and Latour, 1992).

In practice, firstly, KBUD is a local economic development strategy that codifies technical

knowledge for the innovation of products and services, including urban services, market knowledge for understanding changes in the economy, financial knowledge to measure the inputs and outputs of production and development processes, and human knowledge in the form of creativity and innovation, within an economic model (Lever, 2002).

Secondly, KBUD indicates the intention to increase the wellbeing, qualification, skill and knowledge of residents and employees as a means for intellectual, human and socio-cultural development, and also aims to improve the quality of life by providing necessary services for societal development (Gonzalez et al., 2005).

Thirdly, KBUD builds a strong spatial relationship among knowledge hubs and community precincts for augmenting the knowledge spill-over effect that contributes significantly to the establishment and expansion of creative urban regions and supports linkages and knowledge transfer between these precincts (Yigitcanlar et al., 2008c). It also aims an enviro-urban development that is ecologically sensitive, sustainable and safe (Yigitcanlar et al., 2010).

Fourthly, KBUD requires a special focus on institutional development that reforms and establishes organisations that work closely with all stakeholders, bring all actors together including citizens, and take a lead role in managing the strategic planning and development process and the orchestration of the development (Yigitcanlar, 2010).

According to the relatively recent literature, in order to achieve a development that is knowledge-based, the central conditions include: knowledge infrastructure (e.g. universities, research and development institutes); technological infrastructure (e.g. ICTs); connections to the global economy (e.g. international companies and finance institutions); and concentrations of well-educated and creative people (e.g. knowledge and creative workers) (Van Winden and Berg, 2004; Carrillo, 2006; Corey and Wilson, 2006).

3 Knowledge based urban development in Malaysia

In recent years, development policies in Malaysia have been refocused to accommodate activities that rely more heavily on knowledge and human capitals. The government have started to adopt policies in order to establish the basic foundations of the knowledge economy, such as human resource development, research and development, information infrastructure provision, science and technology investments, strong financing mechanisms, equity matters, and bridging the digital divide (Jaffee, 1998). The Malaysian experience represents a new paradigm in the creation of value for the knowledge economy, as it aspires to transform not just the economy but also the national identity, and conveys a new socio-spatial vision for the nation, through KBUD strategies.

As Mohamad (1998) suggests, Malaysian KBUD initiatives have moved beyond simply being a strategy for the creation of an ideal environment for technology. These initiatives attempt to alter the lifestyles and foster the establishment of a knowledge society. Malaysian planning system is based on the British model, a plan-led system directed by policies outlined in the hierarchical order of plans, and the future spatial development of the nation corresponds well with the intent of KBUD (Al-Furaih et al., 2007). Malaysia's strategic planning mechanisms, such as the Five-year Malaysia Plan and the Outline Perspective Plan, seek to recreate Malaysia as a home of its knowledge society. For example, under the economic blueprint for the nation, the Ninth Malaysia Plan (2006-2010), KBUD is placed as one of the five top priority areas.

The intention to transform Malaysia's economy into a knowledge economy first became evident in the mid 1990's with the release of the National ICT Agenda (NITA), which is underpinned by KBUD initiatives for the creation of an ideal environment for the ICT and multimedia sectors (Economic Planning Unit, 2001). NITA serves to guide the formulation of strategies for the development, promotion and utilisation of ICT, and seeks to promote Malaysia's global competitiveness in the ICT sector. NITA also works towards to attract and retain knowledge workers, industries and businesses, through the creation of an attractive and suitable environment for the development of ICT and related knowledge industries. KBUD within the NITA agenda basically focuses on the provision of telecommunications infrastructures in addition to a corridor development project comprising five designated cyber hubs: Kuala Lumpur City Centre, Kuala Lumpur Tower, Technology Park Malaysia, Cyberjaya and Malaysian Technology Development Corporation, and University Putra Malaysia Incubator Centre.

In Malaysia, the shift towards a knowledge economy is also a part of a wider plan so called the National Vision of 2020 (Economic Research Services Department, 2000). It is a 30 year plan that aspires to achieve more sustainable and knowledge-based growth in Malaysia. In terms of economic performance and technological capabilities, the vision aims to elevate the country to a higher trajectory to achieve a

'developed nation' status (Mohamad, 1996). It is intended that the Malaysian public can be united under the vision and seek to make over Malaysia as a robust and resilient nation, in which the society is more democratic, progressive and tolerant, whilst retaining strong moral and ethical values. Specifically, the plan endeavours to achieve a national shift towards a knowledge economy, supported by the establishment of a strong ICT sector and implementation of various KBUD strategies.

Vision 2020 challenges the nation "to establish a scientific and progressive society, a society that is innovative and forward looking; one that is not only a consumer of technology but also a contributor to the scientific and technological civilisation of the future" (Economic Planning Unit, 2006:39). The most significant KBUD commitment of the plan is the ambitious Multimedia Super Corridor multi-billion dollar project (Yigitcanlar and Sarimin, 2010).

4 Knowledge-based urban development of Multimedia Super Corridor

Malaysia's Multimedia Super Corridor Project (MSC), an ICT hub of next generation telecommunications infrastructure designed to promote multimedia products and services, is one of the largest and most significant KBUD undertakings within the South-East Asia region. The MSC project seeks to provide Malaysia with a world leading example of ICT development; supported through the creation of an urban corridor incorporating 'state-of-the-art' multimedia infrastructure, an efficient transport infrastructure systems and an attractive living environment (Yigitcanlar and Sarimin, 2010). Figure 3 below shows the location of the MSC within its local and regional setting.

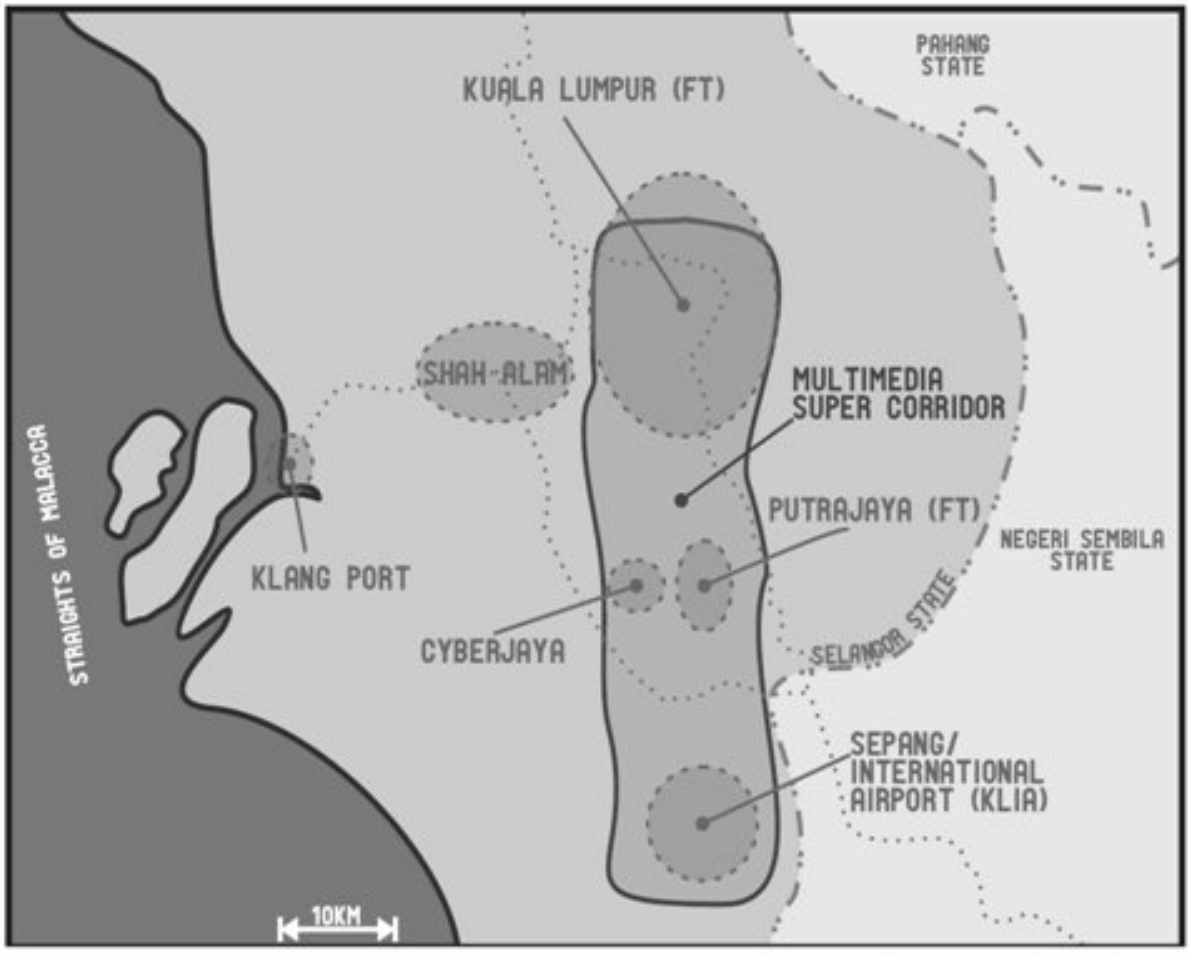

Figure 3 Location of the Multimedia Super Corridor (Bowman et. al., 2008: 9)

It is intended that the MSC to function as a multimedia catalyst to provide Malaysia with the high technology environment necessary to attract knowledge workers, techno-entrepreneurs and industries to invest and operate within the corridor. Furthermore, it is envisaged that the MSC region to become a global centre for research, development and design, and have the capacity to house the operational

headquarters for numerous multinational companies. In order to achieve this vision and support the sustainable development and efficient management of land and resources; development within the region is governed by a number of KBUD strategies in the form of local area plans and urban design guidelines contained within various planning and policy documents (Federal Town and Country Planning, 1997a; 1997b). KBUD is utilised as a strategic mechanism for enviro-urban, economic and socio-cultural development processes, to realise highest quality-of-life opportunities for all socio-economic levels of residents, and achieve a socially and culturally rich and diverse community within the corridor.

In Malaysia, KBUD is delineated through various development objectives, such as 'to facilitate a human oriented, knowledge city in harmony with nature' and 'to promote opportunities for vibrant enterprise, commercial and residential development' (Federal Town and Country Planning, 1997a; 1997b). Furthermore, KBUD directs the development of the physical attributes necessary to establish the MSC as a centre for information and technological advancement, such as appropriate advanced telecommunication infrastructure for multimedia and ICT industries. In doing so KBUD contributes to the promotion of new knowledge-intensive industrial sectors within the region to support growth of the knowledge economy (Yigitcanlar and Sarimin, 2010).

Completion of the MSC is estimated at an approximate 20 year timeframe and the development staged into three phases of activities, where the operations are managed by a designated authority of the Multimedia Development Corporation (MDeC). The MDeC successfully orchestrated the first phase of the MSC between 1996 and 2004 by passing world-leading framework of cyber laws from the supreme court, establishing Cyberjaya as a knowledge city, and attracting a core group of world-class companies and workers to the corridor (Yigitcanlar and Sarimin, 2010). Additionally, seven 'Flagship Applications' have been launched to function to support the expansion of: R&D clusters; e-government; world-wide manufacturing networks; borderless marketing arenas; tele-medical; smart schools, and; multi-purpose facilities. The first phase of the MSC comprised an area of approximately 750 square kilometres and incorporated cluster developments of seven distinctive knowledge zones. These designated zones include: Airport City, Cyber Village, High-Technology Parks, R&D Centres, Tele-suburbs, and two knowledge cities – Putrjaya and Cyberjaya (MDeC, 2008).

As its name suggests, Airport City acts as a development centre that provides support to Kuala Lumpur International Airport and Aeronautical Services Centre. Cyber Village is intended to provide a nucleus for local ICT small and medium-scale enterprises (SMEs). High-Tech Parks are proposed as the locations for high-tech industrial activities and institutions for industrial research and development. Meanwhile, R&D Centres are located within the heart of the MSC, and are intended to be clusters of cooperative research for academic and corporate R&D institutions. Tele-Suburbs act as the residential areas of the MSC, and are the zones proposed for the development of smart homes, smart schools and smart neighbourhood local centres to provide quality residential environment for the knowledge workers and their families. The corridor also includes two world famous knowledge cities – Putrajaya and Cyberjaya.

Putrjaya is Malaysia's new federal administrative and e-government centre, with approximately 4,600 hectares housing almost all of the federal government ministries and accommodation over 30,000 residents. Cyberjaya is a development hub of ICT and multimedia companies, covering an area of approximately 7,000 hectares and serves to provide the infrastructure and facilities required to support multimedia industries in the MSC. In addition to accommodating an expected residential population of approximately 240,000 Malaysians, Cyberjaya also is planned to be home for around 10,000 foreign knowledge workers (Mukhtar, 2008). Both of these knowledge cities consist of various designated zones for housing, recreation, education, government and community services, R&D institutions, and commerce and businesses (Federal Department of Town and Country Planning, 2005; 2006).

The MSC is currently within its second phase of development, and it is expected to be completed in 2011 (2004-2011). The second phase aims to link the MSC with other global knowledge cities by creating a web of corridors and attracting world class knowledge industry and businesses. Ultimately the MDeC endeavours to develop a number of knowledge and globally well-linked cities and establish the MSC as a global exemplar for flagship applications, KBUD and cyber laws.

The third and final stage of the MSC (2011-2020) proposes a nation-wide expansion of the corridor, so as to transform the entire society and the nation into a 'knowledge society' and 'knowledge nation' as envisaged by the Vision 2020 (MDeC, 2006; 2008).

5 Discussion

The overall founding principles and key development strategies of the MSC are closely linked to

the central conditions of KBUD, which in turn highlight Malaysia's ongoing transformation from a classic industrial society to a knowledge society. Within the first phase of development of the MSC, many KBUD conditions have proven successful in stimulating national economic growth, such as: ICT and technological infrastructure (i.e widespread optical fibre development); international investment and connections to the global knowledge economy (i.e. foreign corporations/direct investment and five gigabit international gateway); concentrations of knowledge and creative workers (i.e. Putrjaya and Cyberjaya); knowledge institutions (i.e. R&D Centres and Cyber Villages), and; organisational capacity (i.e. Flagship Applications, Vision 2020 and National ICT Agenda). In the MSC strategic policy thrust, which concentrates on the development of e-commerce, e-services, e-learning, e-economy and e-sovereignty, actions have been coordinated with a number of tactical policies.

These include Federal Government making necessary legislations, and strategies offering both attractive financial and other incentives to local and international investors. For example, in 2005, the Malaysian Federal Government passed the 'Bill of Guarantee' in order to attract and retain knowledge industry and businesses in the MSC. The guiding principles and government commitments contained within this bill can be summarised as follows (MDeC, 2006):

- Provision of world-class physical and information infrastructure;
- Unrestricted employment capacity of local and foreign knowledge workers;
- Freedom of ownership and exemption of the MSC companies from local ownership requirements;
- Unrestricted capacity to source global capital for infrastructure development;
- Provision of competitive financial incentives, including tax free periods and investment and duty free tax allowances;
- Exceptional intellectual property protection regulations and cyber laws;
- Freedom from internet censorship;
- Provision of globally competitive telecommunications tariffs;
- Awarding of key infrastructure contracts to companies with regional operations centres in the MSC, and;
- Establishment of MDeC as leading agent for operational management of the MSC.

Beyond ICT and multimedia industries the MDeC also seeks to attract other non-ICT knowledge-intensive businesses to the MSC, especially enterprises within the finance, insurance and real-estate sectors. Consequently, and in conjunction with the 'Bill of Guarantee', the MDeC offers MSC companies access to various financial and non financial incentives. For example, companies are provided with five years exemption from Malaysian income tax, renewable for a period up to ten years. Alternatively companies can participate in a 100% Investment Tax Allowance for up to five years on new MSC development investments (provided they qualify under the Promotion of Investment Act 1997), duty free importation of multimedia equipment as well as R&D grants for local SME's. In terms of non-financial incentives for example, knowledge workers can participate in a fast-tracking system for obtaining working visas, which permit foreign employees multiple entries for an initial period of up to five years. Furthermore companies have rights to the unrestricted employment of foreign knowledge workers, freedom of ownership, freedom to source capital globally, intellectual property protection, execution of cyber laws and a healthy physical environment (Yigitcanlar and Sarimin, 2010).

In terms of the organisational capacity and institutional development processes required for successful KBUD, the MSC is influenced by a number of key government appointed agencies. As mentioned earlier, the principal agency of the MSC is the MDeC and serves as a 'one-stop agency', charged with the responsibility of facilitating the operation and ensuring the success of the MSC, including the companies located within the corridor. The MDeC is obligated to advise the Malaysian Government on legislation and policies relating to specific MSC matters, and set the regulations for national multi-media operations. Furthermore, MDeC functions to develop and manage the MSC in line with the vision to realise Malaysia as a globally recognised location for ICT and multimedia innovations, services and operations (MDeC, 2008).

As a supporting agency to MDeC, the Cyberview Corporation is the government agency acts to spearhead the development of Cyberjaya as the sole proprietor. Cyberview's mission is to realise Cyberjaya as an ICT nucleus of the MSC and centre specific initiatives of the Vision 2020. The primary roles assigned to Cyberview include coordinating joint ventures within Cyberjaya, and ensuring that all activities are achieved in accordance with the MSC guidelines. Furthermore, Cyberview is responsible for the physical development of Cyberjaya, including land administration, enterprise matters, built form, provision of amenities, and maintenance (Cyberview Corporation, 2009).

Subsequent to Cyberview Corporation is the Setia Haruman Corporation, which acts as the

master developer of Cyberjaya. Setia Haruman is entrusted with the tasks of planning, designing and provision of primary infrastructure for the Cyberjaya 'Flagship' zone. The Flagship area covers approximately 7,000 acres of freehold land equipped with a multitude of intelligent network services and interactive broadband services, and comprises four key zones: enterprise; commercial; institutional; and residential. Setia Haruman is also responsible for the marketing and selling of land parcels and real estate developments, in addition to offering assistance for the attainment of planning approvals for land reconfiguration and buildings, both commercial and residential (Setia Haruman Corporation, 2009).

Sepang Municipal Council (SMC) formerly known as the Sepang District Council, is the local planning authority for Cyberjaya and has administrative power for approximately 60,000 square kilometres of developable land within the MSC. The responsibility of SMC as the local planning authority for Sepang is to set out the planning scheme, under the Local Government Act 1976, and execute planning tasks and community services in Cyberjaya.

Table 1 summarises the key success factors and achievements of MSC within the scope of KBUD's four central domains. The first policy area of the Table 1 concerns of economic development and include policies to create a vibrant business environment and introduce new legislation and incentives to attract knowledge-intensive industry and businesses. The second policy area is socio-cultural development and consist of policies to establish new residential, service and social areas that are world-class to cater for the requirements of the knowledge worker families and contribute to the quality of life and place. The third policy area concerns of enviro-urban development and policies in this area focuses on the development of sustainable infrastructure for green industries to flourish in the region and improve the liveability and sustainable urban development. The final policy area is the institutional development and policies in this area seeks the establishment of organisations that orchestrate the KBUD and deal with the execution of the development and the legal procedures to aid in the advancement of e-applications.

Table 1 MSC Malaysia's key KBUD success factors

KBUD Domains	**Policies on MSC Development**
Economic Development	Introduce new legislation, regulation and incentives to become a magnet for investment and talent
	Create a vibrant business environment to attract international knowledge-intensive industry and businesses
Socio-Cultural Development	Provide world-class facilities and lifestyle options to attract and retain knowledge workers
	Promote quality of life for catering all layers of the society and entire population
Enviro-Urban Development	Upgrade the urban setting and key hard and soft infrastructures in order to increase the liveability and environmentally friendly development
	Encourage green industries such as multimedia industry by expanding high-capacity telecommunication and logistics infrastructure
Institutional Development	Establish and reiterate the fundamental importance of highly sourced and powered organisations
	Execute legal procedures precisely and timely to aid the advancement of e-government, e-commerce, e-participation and multimedia applications

6 Conclusion

The research reported in this paper has revealed that ICTs and KBUD are playing major roles in shaping economic, enviro-urban and institutional development of Malaysia in its transformation to a knowledge society and nation. Notwithstanding criticisms levied at Malaysia's Federal Government with regards to the underdevelopment of socio-cultural development support processes for the knowledge society; Cyberjaya as the largest manifestation of KBUD mechanisms provides a good example of success based on its inward investment and job creation. As Bunnell (2004: 148) states "by the infrastructural and economic criteria of its proponents, [the] MSC is perhaps the qualified success". Lepawsky (2005) further highlights the uniqueness of the MSC as the driver of national development and its role in the alteration of Malaysian identity. He states that the MSC "is not [only] just another physical location, or just

another industrial or technological park – and it is not a far eastern imitation of the Silicon Valley, [but also] represents a new paradigm in the creation of value for the information age" (Mohamad, 1998:107, cited in Lepawsky, 2005:10).

Whilst some of the benefits of KBUD strategies within MSC policy are obvious, urban planning and development at such a large scale requires an additional period of time before the project can be more comprehensively evaluated. Beyond project dynamics, the physical development of the MSC is also subject to the global economic conditions and as Bunnell (2004) suggests the physical development of Cyberjaya has suffered critical infrastructure delays as a result of economic recession in 1997 and then in 2009. Whilst, when compared to other knowledge cities/corridors such as Boston and Silicon Valley, the overall development of the MSC continues to progress (Indergaard, 2003 cited in Bunnell, 2004), although the recent global financial crisis is similarly impacting on the development as did during the 1997 recession. Nonetheless, the MSC is a long term plan, largely driven by the private sector, fully supported by the Malaysian Government and is regarded as a national strength within the knowledge economy.

On the whole, the MSC, with its strong KBUD focus, is functioning well to provide Malaysia an opportunity to enter the global marketplace through becoming an international centre, in other words a knowledge corridor for knowledge industries, enterprises and society. In general, there are a number of lessons that can be learned from the KBUD experience of the MSC.

Firstly, whilst the global examples of KBUD are commonly locally based (i.e. Delft, Barcelona, Silicon Valley), the MSC is unique in so far as it is positioned on the national agenda. Consequently, KBUD is evident in the vision for the MSC, and has been translated into the various development plans which guide the direction of future development within the nation. This systematic approach ensures that elements of KBUD are continuously embedded within any future proposed socio-spatial development of Malaysia.

Secondly, the successful development of the MSC to this point can be in part attributed to the concerted effort of both the public and private sectors. High levels of government intervention in combination with a continuous commitment to ensuring the success of KBUD initiatives have helped increase confidence in the MSC for international investors and reduce the impact of unfavourable market forces. Further to this, the creation of the MDeC, as a 'one-stop-agency' for operational management of the MSC, is a critical institutional factor in the organisational capacity of KBUD.

Thirdly, KBUD initiatives need to be correctly allocated and phased. For example undertaking the first phase of MSC development in the Klang Valley Metropolitan Area (KLMA) was advantageous to the project in terms of obtaining an inimitable location. In fact, the MSC can be seen to have a 'unique niche' as it offers a comprehensive package with attractive surroundings and increased quality of life (Taylor, 2003). In addition, the current breadth of local knowledge workers in Kuala Lumpur has contributed to the successful establishment of KBUD initiatives; especially as KLMA offers a good quality urban setting from which the physical and also social environments of Malaysia can be further enhanced.

Fourthly, at least in part the success of KBUD within the context of the MSC can be attributed to the comprehensive and cooperative effort from all levels of governments of Malaysia. Notwithstanding, continuous policy monitoring is further required to ensure that the objectives of the MSC and the Vision 2020 are appropriately achieved, so that Malaysia can become more competitive within the global marketplace. KBUD is a dynamic, participatory and strategic process and it requires a careful and delicate orchestration where the real success cannot happen in a short span of time, and hence continuous evaluation and assessment is required.

Fifthly, a particular attention needs to be paid to intangible factors of the knowledge economy such as the community attitudes and culture, as public input into the planning and development of the physical environment can serve to enhance the success of KBUD initiatives. The continued progress of the MSC into its second phase has proven it to be an appropriate platform for the manifestation of KBUD strategies to achieve the nation's Vision 2020 and transport Malaysia to a developed nation status within the context of global knowledge economy. In addition the MSC has become the key driver in making Malaysia more responsive to the threats and opportunities presented by the market driven and technology oriented economic globalisation.

Lastly, in the case of other nations, with similar characteristics to Malaysia, elevating KBUD initiatives to the national agenda, while still linking them locally and regionally, is recommended as an effective strategy for transformation of their economy into knowledge economy and their society into knowledge society.

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